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William E. Faure  
*Pacific University*

Steven L. Glick  
*Pacific University*

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## Trends in optometric education concerning developmental vision and visual training

### Abstract

A questionnaire was sent to 209 optometrists teaching at each of the thirteen U.S. optometry schools. It contained questions pertaining to optometric educators attitudes toward their educational background in developmental vision and visual training. Questions were designed to solicit opinions on what role developmental vision and visual training play in optometric education today. The professors attitudes and opinions were compared to their year of graduation. Lastly, profile information and data concerning the field of expertise was gathered from each survey recipient.

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### Committee Chair

Norman S. Stern

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Opt.  
Faure*

PACIFIC UNIVERSITY COLLEGE OF OPTOMETRY

TRENDS IN OPTOMETRIC EDUCATION  
CONCERNING DEVELOPMENTAL VISION AND VISUAL TRAINING

A THESIS PRESENTED TO  
THE FACULTY OF THE COLLEGE OF OPTOMETRY  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF DOCTOR OF OPTOMETRY

by

William E. Faure

Steven L. Glick

February, 1980

Advisor: Norman S. Stern, O.D., Ph.D.

STUDENTS

William E. Faure  
William E. Faure

Steven L. Glick  
Steven L. Glick

ADVISOR

Norman Stern  
Norman Stern, D.D., Ph.D.

*Handwritten mark resembling a stylized 'A' or 'H' with a long diagonal stroke.*

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We wish to thank the College of Optometrists in Vision Development for financial aid granted to us which made the survey possible.

## ABSTRACT

A questionnaire was sent to 209 optometrists teaching at each of the thirteen U.S. optometry schools. It contained questions pertaining to optometric educators' attitudes toward their educational background in developmental vision and visual training. Questions were designed to solicit opinions on what role developmental vision and visual training play in optometric education today. The professors' attitudes and opinions were compared to their year of graduation. Lastly, profile information and data concerning the field of expertise was gathered from each survey recipient.



## INTRODUCTION

The origin of the study into developmental vision training has been credited to Dr. A. M. Skeffington. As director of education for the Optometric Extension Program he initiated the discussions concerning the visual performance of the very young child at the St. Louis Vision Training Conferences in 1938, 1939, 1940, and 1941 (Getman, 1972). From these conferences, optometric interest grew toward the work of Yale developmental psychologist, Dr. Arnold Gesell.

The work at Gesell's Yale University Clinic of Child Development took on a functional philosophy as men like Skeffington, Dr. G. N. Getman, and others made their contributions. Dr. Gesell was attracted toward the idea that a total philosophy of vision has importance in his total philosophy of child development. It was the work of the Optometric Extension Program that allowed Dr. Gesell and the staff of the university clinic to complete the studies of early visual development and write the book, "Vision, Its Development In Infant and Child" (Getman, 1972).

Getman, who worked with Gesell at the Yale University Clinic, contributed much to the field of optometric vision development training. His influence provided many techniques that relied on motor, sensory, visualization activities, all aimed at facilitating growth in children with developmental problems. Many programs since have utilized motor and sensory-motor activities (Kephart, 1971, Arner, 1965, Friedman, 1968, Getz, 1973, Koetting, 1971). In 1960 Getman and his colleagues organized the Children's Visual Care and Guidance Section of the Optometric Extension Program (Keogh, 1974).

Within the profession of optometry, many groups have been organized for practitioners dealing with vision and perception training. These organizations, located throughout the country, formally merged to form the College of Optometrists in Vision Development in 1971 (Wold, 1973). This group was organized to promote functional and developmental concepts of vision, maintain standards of knowledge and competency, and encourage research in this specialty.

The importance of vision in the developing child has gained much emphasis in the practice of optometry over the years, progressing to the point that its concepts are offered in each school and college of optometry in the United States. Catalogues contain many courses in the behavioral sciences concerning the development of visual, perceptual, and cognitive functions. Courses devoted to perceptual-motor diagnosis and therapeutics are offered at most institutions. In reviewing the course descriptions, the emphasis is more explicit at some institutions than others. The Curriculum Committee of the Association of Schools and Colleges of Optometry (ASCO) published a "curriculum model" in the Journal of Optometric Education. It contains developmental vision concepts within its curricular elements in behavioral science. The elements include the definition and historical concepts of specific developmental disabilities, information and control in visual motor skills, factors involved in visual motor behavior, bodily coordination, lateralization, complex visual motor skills, perceptual and perceptual-motor tasks, copying and drawing, phases of skills acquisition, conditions effecting skill acquisition, and the role of optometry in specific developmental disabilities. These are concepts the experts in this academic area of the curriculum felt were necessary to prepare optometry students for their role in the health care system.

This project is an effort to acquire information concerning developmental vision and visual training from the faculty at each school and college of optometry in the United States. We set out to discover the opinions of today's optometric educators and how this subject is dealt with in each institution. There is a need for optometry to know what direction it is taking in this area so knowledgeable decisions can be made in educating future optometrists.

## METHODS

A nineteen-item questionnaire was sent to 209 educators at each of the thirteen U.S. optometry schools. Survey recipients were picked from the most recent school catalogues and were chosen only if they were doctors of optometry and full or associate professors. We attempted to survey faculty members with expertise in every major area of optometric education. Clinic advisors and administrators were left out of our survey because we wanted to solicit the opinions of those who directly teach in a classroom situation.

Each correspondence contained a cover letter, a copy of the two-page questionnaire, and a self-addressed stamped envelope for the convenience of those responding. The cover letter explained who we are and the purpose of our survey.

In any survey, difficulties in assumptions and generalities must be dealt with in order to be able to address a given population. Vision training and developmental vision mean many things to many people. Therefore, a definition for the purpose of the survey was in order. The definition used for visual training was obtained from the Visual Science Dictionary. We could find no clear cut "definition" of developmental vision in any publication. Consequently, we formulated our own definition. This was done by questioning faculty members at Pacific University and combining their ideas with our own to come up with the final definition. Though we felt that these definitions adequately explained the terms visual training and developmental vision, an inherent limitation is present in that we were unable to control how each respondent interpreted that definition. To give those

surveyed a chance to disagree with our definition of developmental vision, we provided space for their own personal interpretations. These individual comments are included in the results section of this paper. (See Appendix I for a copy of the survey questionnaire.)

## RESULTS

The questionnaire results are given in graphical form. They have been divided into three categories: first, profile and general information; second, training and education in developmental vision and visual training; and third, trends and opinions concerning developmental vision and visual training.

Correlations between the year of graduation (Question #2) and opinions concerning developmental vision and visual training (Questions #14-17) have been made. Correlations between the year of graduation (Question #2) and educational training in developmental and visual training (Questions #7 & 8) were also made. These correlational graphs are also found in the results section.

A total of ninety-eight surveys were returned for a 47 percent response rate. The rate of usable return results from each optometry school are displayed in Table I.

SCHOOL OR COLLEGE	# SENT	# RECEIVED	PERCENTAGE
OSU	11	2	18
UAB	13	9	69
PUCO	14	4	29
FSC	7	5	71
ICO	20	11	55
SCO	20	11	55
SCCO	20	10	50
SUNY	29	17	59
PCO	23	9	39
IU	12	5	42
NEWENCO	8	3	38
UHCO	23	8	35
UC-Berkeley	9	4	44
TOTAL	209	98	47

TABLE I: Response to survey of trends in optometric education concerning developmental vision and visual training by individual optometric institution

RECEIVED O.D. DEGREE FROM	NUMBER	PERCENT OF TOTAL RESPONDING
OSU	8	8
UAB	0	0
PUCO	7	7
FSC	0	0
ICO	18	18
SCO	9	9
SCCO	11	11
SUNY	4	4
PCO	16	16
IU	3	3
NEWENCO	7	7
UHCO	7	7
UC-Berkeley	7	7
Melbourne, Aust.	1	1

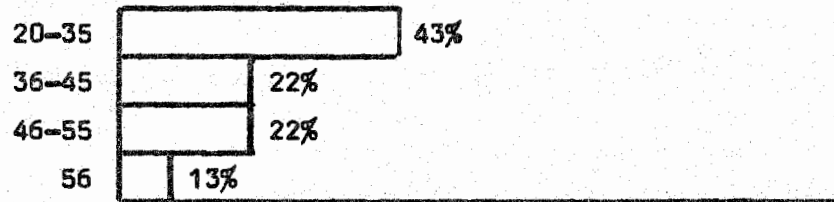
TABLE II: Breakdown of response to survey concerning trends in developmental vision and visual training showing which school each respondent graduated from



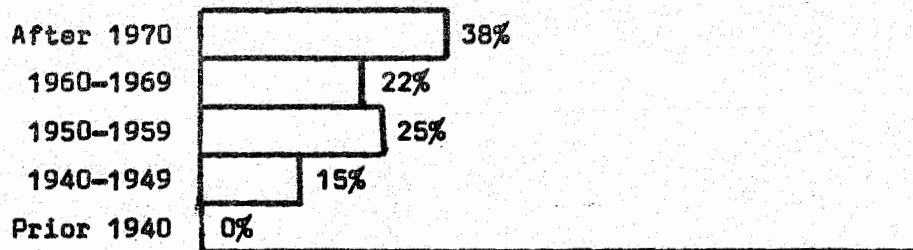
COURSES TAUGHT	NUMBER	PERCENT OF THOSE RESPONDING
OPTICS (Geo, Theo, Phys, Ophth, P.O.)	23	23
VT-DV	31	31
PATHOLOGY	10	10
CONTACT LENSES	21	21
LOW VISION	10	10
ELECTRODIAGNOSTICS	1	1
PHARMACOLOGY	2	2
PROCEDURES	4	4
ANATOMY	1	1
STRABISMUS	16	16
CLINICAL OPTOMETRY	17	17
VISUAL OPTOMETRY	2	2
OTHER	18	18

TABLE III: Subjects taught by respondents to survey concerning trends in developmental vision and visual training (some respondents gave more than one answer)

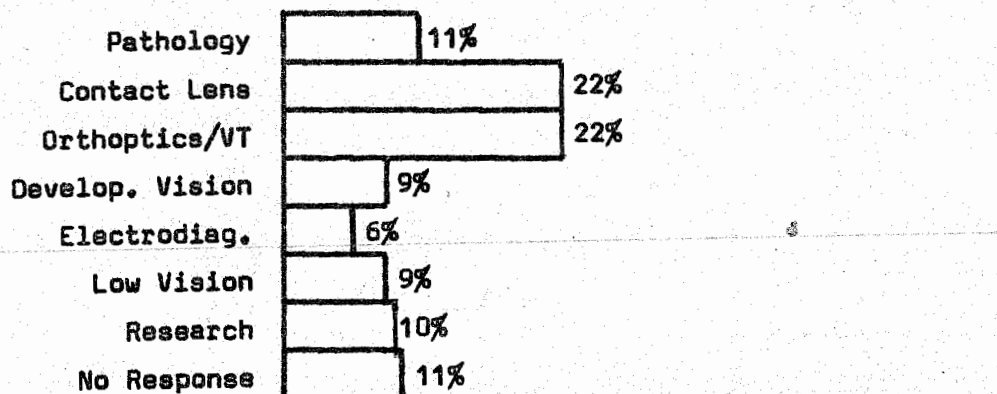
**Question #1: Age Distribution of Respondents**



**Question #2: Year of Graduation of Respondents**



**Question #6: Respondents' Areas of Expertise**



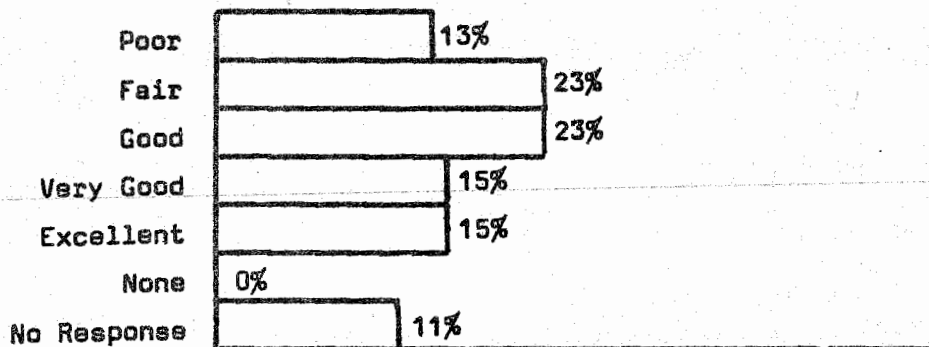
TRAINING AND EDUCATION IN DEVELOPMENTAL VISION AND  
VISUAL TRAINING

Question #7: Rate your formal education in Visual Training?

- a. poor
- b. fair
- c. good
- d. very good
- e. excellent
- f. I had no formal education in V.T.

36 percent of those responding felt that their formal education in visual training was fair or poor. 30 percent felt that it was very good to excellent. The total response to this question showed an evenly distributed response, but when reviewing the responses to this question by year of graduation, a different trend was found. Of those graduating in 1970 or later, 40 percent felt their formal education in visual training was very good to excellent, while only 23 percent felt it was fair to poor. Of those graduating 1940-1949, 60 percent felt their formal education in V.T. was fair to poor and only 27 percent felt it was very good. None of this last group felt it was excellent. (Correlation graphs are found in Appendix IV.)

Question #7: Respondents Formal Education in Visual Training

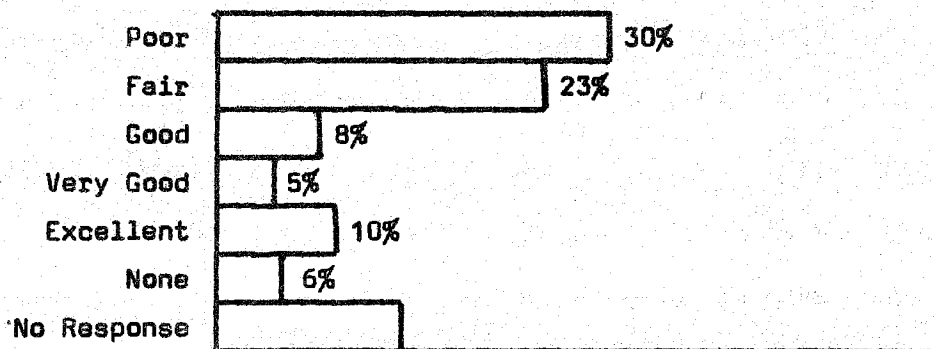


Question #8: Rate your formal education in Developmental Vision

- a. poor
- b. fair
- c. good
- d. very good
- e. excellent
- f. I had no formal education in D. V.

Over half (53 percent) of those O.D.'s surveyed felt their formal education in developmental vision was fair to poor. Only 15 percent felt it was very good or excellent. When correlating this question to the year of graduation, no significant response difference was found. However, it was found that of those graduating in 1970 or later, only three percent did not have any formal education in developmental vision; while the 1960-1969 group included 14 percent with no formal education in developmental vision and those graduating 1950-1959 showed 28 percent had no formal education in this area.

Question #8: Respondents Formal Education in Developmental Vision



Question #9: Most of your knowledge of visual training resulted from:  
(Rank in order 1-7)

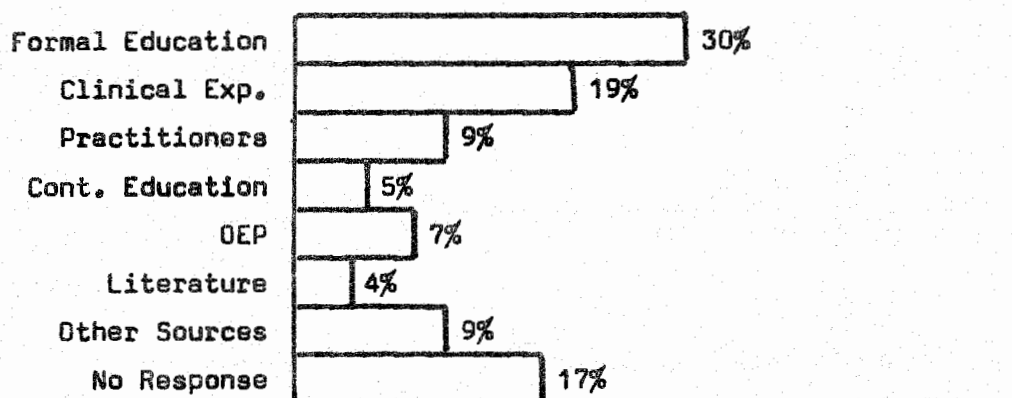
- ( ) formal education in professional school
- ( ) clinical experience
- ( ) other practitioners
- ( ) continuing education
- ( ) OEP

Question #9 (continued)

- ( ) literature
- ( ) other sources (specify)

The overwhelming response to this question showed formal education and clinical experience to be the main sources of knowledge about visual training. Other sources listed by those surveyed included the V.T. residency program at SUNY and the Gesell Institute of Child Development.

Question #9: Sources of Respondents' Knowledge

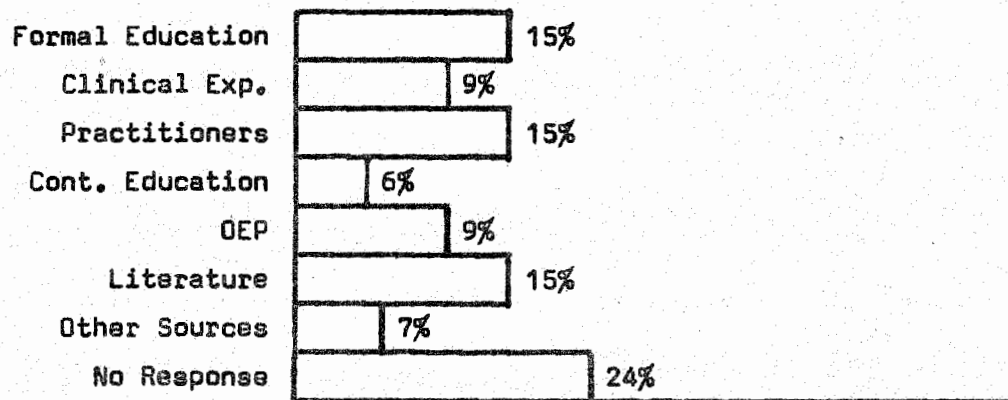


Question #10: Most of your knowledge of developmental vision resulted from: (Rank in order 1-7)

- ( ) formal education in professional school
- ( ) clinical experience
- ( ) other practitioners
- ( ) continuing education
- ( ) OEP
- ( ) literature
- ( ) other sources (specify)

The areas with the largest percentages were formal education, other practitioners, and literature.

Question #10: Sources of Respondents' Knowledge



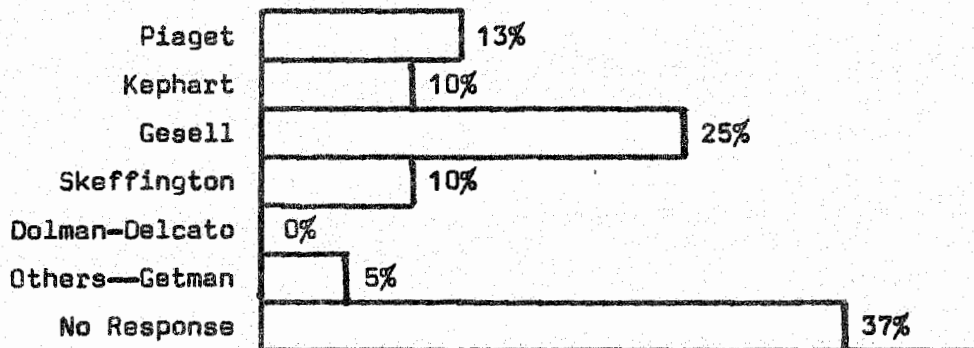
# TRENDS AND OPINIONS CONCERNING DEVELOPMENTAL VISION AND VISUAL TRAINING

Question #11: Which of the following schools of thought have the most influence on your ideas concerning developmental vision?

- ( ) Piaget
- ( ) Kephart
- ( ) Gesell
- ( ) Skeffington
- ( ) Dolman-Delcato
- ( ) Other (specify)

25 percent showed that they considered Gesell to have had the greatest influence on their ideas concerning developmental vision. Significantly, over 37 percent did not respond to this question.

Question #11: Influences on Respondents



Question #12: Are developmental vision courses taught at your school?

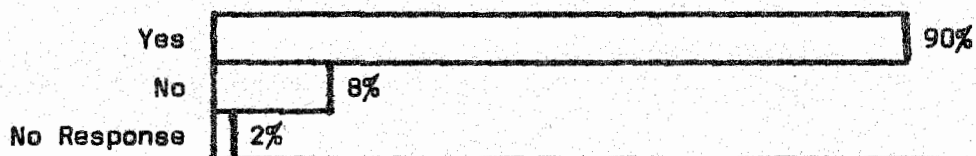
- a. Yes
- b. No

Question #13: If yes, are the courses part of the required core course curriculum?

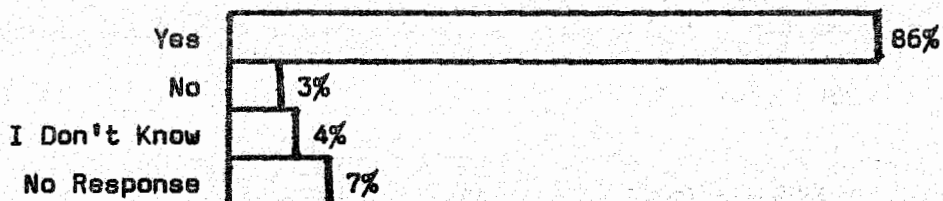
- a. Yes
- b. No
- c. I don't know

According to those surveyed, over 90 percent indicated that developmental vision courses are, indeed, taught at their school. In addition, 86 percent stated that developmental vision courses are part of the required core course curriculum. Four percent said that they did not know.

Question #12: Developmental Courses Taught?



Question #13: Developmental Courses Required?



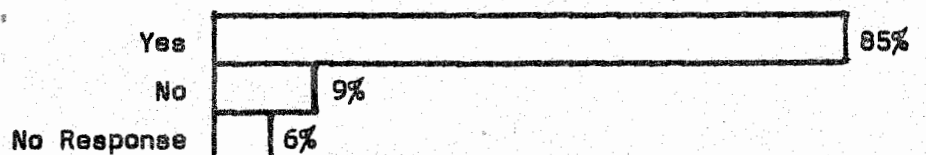
Question #14: Do you feel that developmental vision courses should be required at all optometry schools?

- a. Yes
- b. No

The overwhelming majority of those responding to this question answered yes. Most feel that developmental vision courses should be required at all optometry schools. When correlating this question to year of graduation, no appreciable trend could be established. (Correlation graphs are found in Appendix IV.)



Question #14: Should Developmental Courses Be Required?



Question #15: Do you feel that the emphasis on developmental vision at your school is adequate?

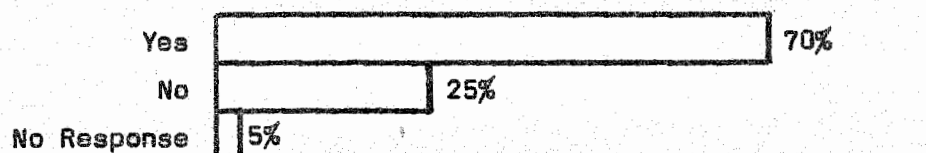
- a. Yes
- b. No

Question #16: Do you feel that the emphasis on visual training at your school is adequate?

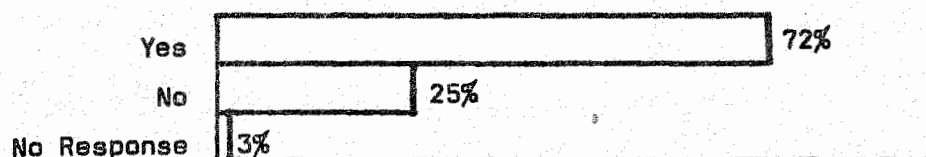
- a. Yes
- b. No

One-fourth of the overall response did not feel the emphasis on developmental vision and vision training was adequate at their respective schools. This percentage remained relatively constant when correlating the data from these questions with year of graduation. (Correlation graphs are found in Appendix IV.)

Question #15: Emphasis on D.V. Adequate?



Question #16: Emphasis on V.T. Adequate?

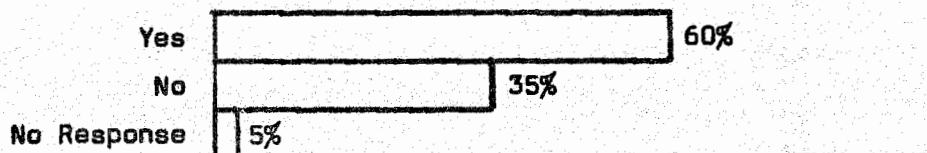


Question #17: Do you feel that the emphasis on developmental vision at your school is changing? If yes, please state how it is changing.

- a. Yes
- b. No

This question was designed to draw personal comments from those surveyed. 60 percent felt that some change was occurring with regard to the emphasis of developmental vision at their school. Of those who felt it was changing, about two-thirds felt the emphasis was increasing, while the rest felt it was decreasing. When reviewing the data and comments to this question, a wide variation of opinions was found. Correlating the results to each school's respondents would have provided more information, but many of the schools had so few responses that a reliable trend could not have been established. Some of the comments are listed below the representative graph. Additional comments can be found in Appendix II.

Question #17: Emphasis on D.V. Changing?



"It is not clear what role it should take and is presently under consultation, perhaps a portion will be defined and incorporated into the orthoptics/strabismus program."

"Improved experience for students in a clinical setting"

"Being eliminated"

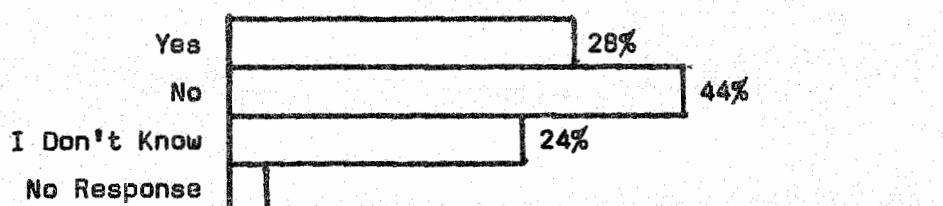
Question #18: Is developmental testing done on all children referred to the V.T. Clinic at your school?

- a. Yes
- b. No
- c. I don't know

Due to the difference in the clinical structure of each school, many of those surveyed expressed difficulty in answering this question. For

this reason, the results of this question cannot be considered reliable. Some comments showed that developmental testing was done only when indicated while others placed an age limit (up to eight or ten years) on when mandatory testing was administered.

Question #18: D.V. Testing Done On All Children Referred For V.T.?



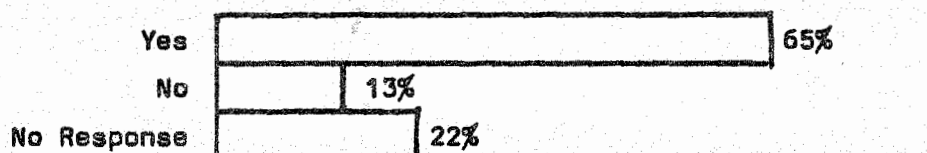
Question #19: Do you agree with the definition of developmental vision as given at the beginning of this survey? If no, please give us your definition.

- a. Yes
- b. No

Two thirds of the responses were in agreement with our definition. For the sake of discussion we presented the definition and asked for comment. All comments received are listed below the graph. Our definition of developmental vision is as follows:

"Developmental vision is that area of optometry which deals with the visual/perceptual/motor stages a child goes through from conception until the present, and how these stages relate to the child's ability to react to and interact with his environment on the basis of information received through the eyes."

Question #19: Agreement with Definition of D.V. as Given



add to the last sentence....."and other sensory inputs."

....."basis of information received and processed through the visual system."

....."to react to and interact with his internal and external environment on the basis of stimuli received through the eyes."

"basically a good definition but mention should be made to neurological and muscular development changes, too"

"development from birth through death, not just child"

"Perhaps it would be more accurate to call the area vision performance since developmental implies the developing visual system...is embryological/physiological."

"The study of the maturation of visual behavior and the treatment of abnormal visual behavior."

"If this were the definition of developmental vision, but qualified by the restriction, "area of optometry based upon scientific knowledge," then I would think teaching in developmental vision is grossly insufficient at all optometric institutions. Developmental vision as it now exists in optometry must, I fear, be defined as a cult rather than as a scientifically based discipline."

"more simply stated: The child's ability to understand and use the information he received from his eyes."

"I'd be tempted to delete "visual/perceptual/motor," unqualified stages is more comprehensive."

"The definition of vision training is inadequate, it is much too limited. Also, your separation of developmental vision and vision training is really not appropriate. They should be considered together as optometric vision training."

"Physiological entities should be included. Developmental vision must relate behavior to physiology as well as psychology."

"Your definition of vision training includes developmental vision. My basic problem is with the term developmental vision per se. Your definition is as good as any. There are developmental factors in vision,

"	"	perceptual	"	"	"	.
"	"	perceptuo-motor	"	"	"	.
"	"	optical	"	"	"	.

This singling out of "OV" as a separate entity bothers me."

"Your definition is good, but it does not cover the scope of practice of those optometrists who state that they are "developmental vision" practitioners. The basic disagreement will result from an attempt to be specific as to "how these stages relate to the child's ability"...etc. and the successes of the various therapies."

## DISCUSSION

When reviewing the section concerning training and education in developmental vision and vision training, some definite trends were established. The results of Question #7 showed that most of those surveyed felt that formal education in V.T. has improved markedly over the past 40 years. In comparison to previous years, more O.D.'s graduating within the last ten years felt their formal education in V.T. was very good to excellent. By contrast, results from Question #8 showed that the majority felt their formal education in D.V. was fair to poor. The data also shows that D.V. courses were not as available to students in the past as they are today.

The results of questions dealing with trends and opinions concerning D.V. and V.T. showed that D.V. courses are part of the required curriculum at nearly all of the schools and colleges of optometry, while most of those surveyed felt that the emphasis in these areas was adequate, the majority felt D.V. emphasis was changing. Personal comments relating to this change showed a trend toward increasing emphasis. These comments can be found in Appendix II.

## SUMMARY AND CONCLUSIONS

The intent of this survey was to gain some insight into how the developmental vision training is being incorporated into present day optometric education.

Developmental vision's role in optometry is a controversial subject. This fact was evident in the comments we received in the survey. Many varying opinions exist as to how optometry should deal with the subject. Some think it is a disgrace to the profession and should be eliminated. Most, however, feel developmental vision is a legitimate optometric concern and that its importance is growing. This is apparent when one views the course catalogues for the past twenty years. More developmental vision courses are being taught now than ever before and almost all schools require a developmental vision course as part of their core course curriculum. Over half of those surveyed indicated that their classroom experience with developmental vision was unsatisfactory. This shows that although interest in the subject is growing, most optometry schools are failing to provide a valuable experience.

Many of those surveyed said that although they feel developmental vision is a viable area of optometry, not enough objective clinical research has been done. This is due to change in the near future as more qualified graduates (in reference to developmental vision) come out of school and make contributions toward a functional philosophy. With a greater awareness of the subject, the emphasis in developmental research at optometric institutions should increase and provide a solid base on which to build sound

clinical techniques. This growing interest in the field of developmental vision will manifest itself in practice as more O.D.'s realize that optometry's future lies in the functional model rather than the medical model.

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## APPENDIX I

**EDUCATIONAL TRENDS IN DEVELOPMENTAL  
VISION AND VISUAL TRAINING SURVEY**

For the purposes of this survey, we have defined developmental vision as that area of optometry which deals with the visual/perceptual/motor stages a child goes through from conception until the present, and how these stages relate to the child's ability to react to and interact with his environment on the basis of information received through the eyes.

Visual training is defined as "the teaching and training process for the improvement of visual perception and the coordination of the two eyes for efficient and comfortable binocular vision." (Ref. Schapero, M., D. Cline, and H. Hofstetter, Dictionary of Visual Science, 2nd edition, Radnor, PA: Chilton Book Co., 1968, p. 516.)

**PROFILE INFORMATION (Circle One)**

1. What is your age?
  - a. 20-35
  - b. 36-45
  - c. 46-55
  - d. 56 and over
2. What year did you complete your professional education?
  - a. 1970 or later
  - b. 1960-1969
  - c. 1950-1959
  - d. 1940-1949
  - e. prior to 1940
3. From what professional school did you graduate? (Fill In)
4. What professional school are you teaching at now? (Fill In)
5. What subjects have you taught? (Fill In)
6. In what areas do you feel you have the most expertise? (Rank in order 1-7.)
  - ( ) Pathology
  - ( ) Contact Lenses
  - ( ) Orthoptics/V.T.
  - ( ) Developmental Vision
  - ( ) Low Vision
  - ( ) Electrodiagnosis
  - ( ) Research

**GENERAL (Circle One)**

7. Rate your formal education in visual training.

- a. poor
- b. fair
- c. good
- d. very good
- e. excellent
- f. I had no formal education in V.T.

8. Rate your formal education in developmental vision.

- a. poor
- b. fair
- c. good
- d. very good
- e. excellent
- f. I had no formal education in developmental vision

9. Most of your knowledge of visual training resulted from: (Rank in order 1-7.)

- ( ) formal education in professional school
- ( ) clinical experience
- ( ) other practitioners
- ( ) continuing education
- ( ) OEP
- ( ) literature
- ( ) other sources ... specify

10. Most of your knowledge of developmental vision resulted from: (Rank in order 1-7.)

- ( ) formal education in professional school
- ( ) clinical experience
- ( ) other practitioners
- ( ) continuing education
- ( ) OEP
- ( ) literature
- ( ) other sources ... specify

11. Which of the following schools of thought have the most influence on your ideas concerning developmental vision? (Rank in order 1-7.)

- ( ) Piaget
- ( ) Kephart
- ( ) Gesell
- ( ) Skeffington
- ( ) Dolman-Delcato
- ( ) Other ... specify

12. Are developmental vision courses taught at your school?

- a. yes
- b. no

13. If yes, are the courses part of the required core course curriculum?

- a. yes
- b. no
- c. I don't know

14. Do you feel that developmental vision courses should be required at all optometry schools?

- a. yes
- b. no

15. Do you feel that the emphasis on developmental vision at your school is adequate?

- a. yes
- b. no

16. Do you feel that the emphasis on visual training at your school is adequate?

- a. yes
- b. no

17. Do you feel that the emphasis on developmental vision at your school is changing?

- a. yes
- b. no

If yes, please state how it is changing.

18. Is developmental testing done on all children referred to the V.T. Clinic at your school?

- a. yes
- b. no
- c. I don't know

19. Do you agree with the definition of developmental vision as given at the beginning of this survey?

- a. yes
- b. no

If no, please give us your definition.

Further comments are welcome.

## APPENDIX II

## COMMENTS TO QUESTION #17

"Improved clinical experience"

"Greater emphasis in V.T. clinic"

"More interest on the part of the faculty"

"Less emphasis on providing visual perceptual training exclusive of any binocular vision disorder"

"Getting away from basic thought"

"Students are becoming more interested, the faculty less interested"

"It is changing to represent a truer picture of developmental vision to include more of the physical (neuro-pathological) aspects."

"New concepts"

"Has gotten more hours"

"Note is being taken of the existence of this field"

"More awareness"

"Greater acceptance and awareness, but still not enough"

"More emphasis on home and school involvement"

"Don't know"

"The trend is toward vision perception and learning disabilities."

"Pathology is taking over"

"As new information is available, it is incorporated in the curriculum."

"Expansion of residency programs"

"It is becoming more structural in that hard research is being utilized to back up theoretical constructs."

"More formal teaching of child development, perceptual psychology, and other background material"

"Interest is increasing as the area develops intellectual and academic respectability"

"Increasing with knowledge of the subject"

"Some, but not alot. There is far more of a change in the areas of ocular disease, ocular pharmacology, and contact lenses. It is difficult to make changes in a "nebulous area."

### APPENDIX III



## GENERAL SURVEY COMMENTS

"I see the relative importance that the schools and colleges of optometry across the country have denoted. I would hope to see the developmental vision and vision training concepts much more prevalent than they are today. I think that it is shortsighted of the profession not to see the future of optometry in functional care rather than the medical technicians."

"Developmental vision is potentially a very important area of optometric expertise. However, many of the criticisms of its techniques may be well-founded since it relies so heavily on uncontrolled informal clinical observations. Carefully obtained objective data are needed."

"This is a totally underdeveloped and underemphasized area in which we could have incredible impact."

"Developmental vision should emphasize the development of both structure and function."

"The students are quite interested in VT/DV, however, the courses come so late in the curriculum that there can be little influence on their philosophy which has been developing over two or three years."

"Developmental vision in its truest form is a field which should deal with all aspects of developmental vision. You cannot just separate out the visual perceptual components. The physical problem must be looked at in depth. Visual perceptual problems may totally result from physical problems....particularly neurological ones. I do agree that as of this time optometry does construe as dealing only with visual perceptual problems, but this is wrong. O.D.'s involved with visual perceptual problems should have a strong base in pathology, particularly neurological function, as of course should all O.D.'s and much more than we in general have at this time."

"I think this area has been and continues to be a disgrace to our profession. I think everything possible should be done to elevate the credentials of its optometric representation and get the quacks out of the area. Optometrists should not be allowed to call themselves developmental vision experts without advanced university type degrees in developmental..."

"Developmental vision is not an "area of optometry" but an area of infant and child development and the rightful concern of a number of other disciplines."

"What other professions provide services for diagnosing and testing developmental vision? Do we do as good a job as these other professions? Is there a need for this service that is not adequately covered? Is optometry best suited to fill that need.?"

"I have heard the phrase "developmental vision" ever since I was an optometry student, but I still have no clear idea about its meaning, if any. There is certainly postnatal visual development, and it occurs in anatomical, physiological and behavioral aspects of the system. For some, as yet unspecified, period of time the system is plastic, or subject to environmental modification. In this sense of developmental vision, this institution (UAB) not only teaches the subject, but conducts federally funded research on the subject."

"We are wrestling with this question at the moment, trying to determine whether a developmental (perceptual visual) analysis should become part of the traditional orthoptics/strabismus clinic."

"Developmental vision" is taught within a multidisciplinary setting at the Center for Developmental and Learning Disorders (CDLD) under the direction of Dr. Jack Pierce. Currently, VT within our Binocular Vision Clinic does not include developmental or perceptual disorders."

"I am never sure what is meant by "developmental vision" unless I know the person who is using the term. Since the visual system is not fully developed at birth, any curriculum dealing with human vision must deal with the developing visual process. Then there is the subdiscipline that has adapted this term to describe a very specific persuasion."

"By and large, optometrists whether trained today or yesteryear are inadequately prepared to deliver developmental vision care. Those who do are fooling themselves as well as their patients."

"VT and DV is a small but important part of practice. What we need to do is to train our G.P. optometrists to be able to identify and refer these patients to men with better expertise in this area."

"Several questions seem biased towards getting answers that DV is inadequate."

"In my opinion, too much emphasis is put on this area. VT and DV are not well supported by scientific data and seems at times to border on mysticism and the occult."

"Developmental vision and V.T. are greatly emphasized at SUNY. Students receive a great amount of didactic and clinical training in these areas. Interestingly, many students feel there is too much emphasis on these subjects at our school."

"At Southern, the courses are taught too late in the curriculum to have an impact on the student. The courses are good and the instructors quite knowledgeable, yet for the students to reorganize thinking after two years of nothing but best refraction, the odds are not good. The students are, however, beginning to demand that those courses are taught and are applied in the clinic."

"We are attempting to add D.V. courses into the curriculum as electives next year, but with a great deal of administrative opposition."

"The major problem is the lack of a clear definition of developmental vision and the lack of validated diagnostic and treatment procedures."

"My feelings from speaking to other recent graduates is that except for SUNY, no other school has a decent curriculum in developmental vision and vision training."

"Emphasis on developmental vision is difficult to judge, since many different courses contribute to an understanding of this field. In addition, clinical experience is an absolute necessity."

"I object to the concept of developmental vision because it is jargon and esoteric. The Academy has a section on Binocular Vision and Perception. This is understood by other professions - medicine, psychology, and education and all concerned professions have contributed and will continue to add to the literature in this multidisciplinary field. The OEP needs to join hands with the host of others concerned with hard to teach children."

"Keep the area of developmental vision and orthoptics in proper perspective to total optometric education. I think general optometric education is starting to take a back seat to all the specialty areas."

"I think that what is important is a good solid ground in functional vision, visual analysis, and vision training. Developmental vision is included within that framework. Separating VT and developmental vision, or separating developmental vision from the rest of functional optometry is counter-productive."

"We are establishing a research oriented infant clinic."

"There has been a move to delete functional vision and related subjects to a lesser place in the education of the student."

"The greatest need in developmental vision is research to better explain clinical results."

"SUNY undoubtedly has the strongest VT-DV program, both didactically and clinically. Over fifty full and part-time faculty members teach in this department alone. There are over 400 patients visiting in the VT clinic every week."

"With the profession changing rapidly, infant and pediatric vision has become a specialty in optometric practice. It provides an avenue of approach that many can benefit from. Proper academic and especially clinical training is a necessity for optometry to continue to increase as a health care science. Other sub-specialties in optometry (CL, LV, etc.) need more emphasis in infant and pediatric care. More cross involvement between VT-infant-pediatrics and CL, LV, etc., is necessary."

"Some optometrists include dyslexia and exophoria as developmental disorders. The inclusion of standard optometric problems in developmental vision creates confusion among practitioners and gives the impression of a cult rather than a professional society."

"I feel that a developmental vision course should be required of all optometry students only as a means to familiarize students with what this area is and what it can do with children with these problems. The students should learn to refer the patients to a doctor working in the area. Those students wishing to practice in this area should take additional courses or an internship to gain the expertise needed for private practice. I think it is impossible to train adequately all optometry students in this area and still complete all the other courses necessary in their education. It should be a specialty for a few!"

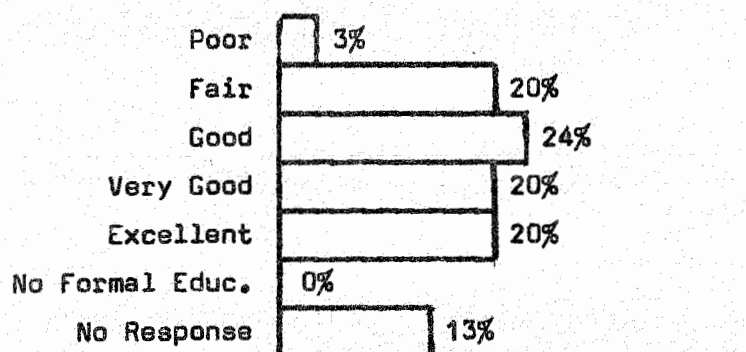
"Are you mixing up developmental vision and visual problems which cause learning problems? Visual problems that cause reading and learning problems may or may not be developmental! In my experience they are developmental 10 percent of the time and 90 percent they are not. This ten percent usually occurs in that portion of the school population who have problems learning to read as contrasted to those who have broken the code but cannot read to learn."

"For many years, NICO and ICO were leaders in the area of VT and DV (children's vision), however, an apparent decrease in activity in this area became apparent approximately five to six years ago. During the past two years there appears to be an apparent increase in interest and activity in the infant care, pediatric, and VT clinics."

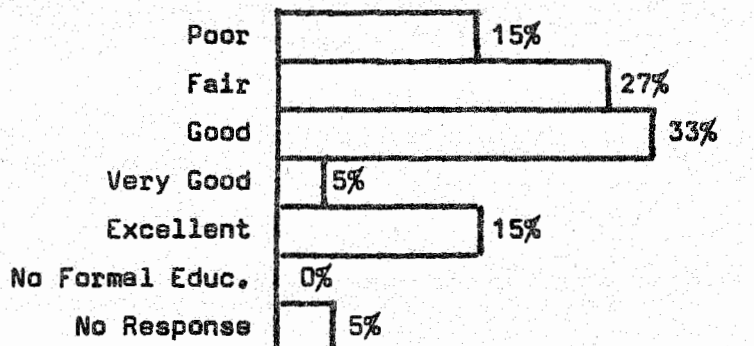
"I can think of no area in optometry which offer the opportunity for clinical research and (based upon animal experiments) offer more favorable prognoses for significant advances in optometric technology, than the development of functional visual mechanisms in infants and children. What the optometric cultist term "developmental vision" has, in my opinion, no scientific basis and no reason to exist. However, the answer lies in adequately controlled clinical trials. The observations of clinicians, no matter how skilled, provide a weak basis for assumed methodological efficacy."

## APPENDIX IV

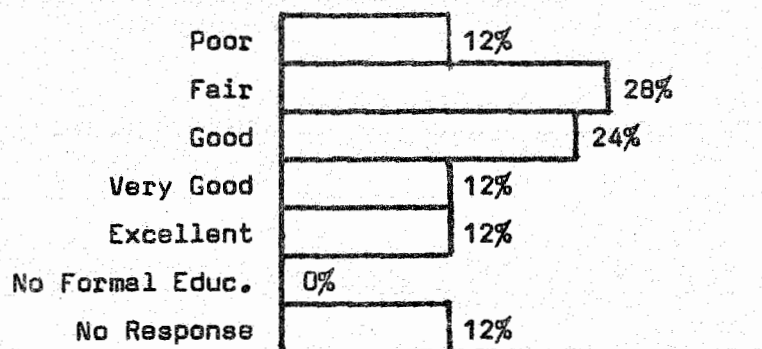
Graphs Correlating Question #2 (Year of Graduation) with Question #7  
(Rate your Formal Education in Visual Training)



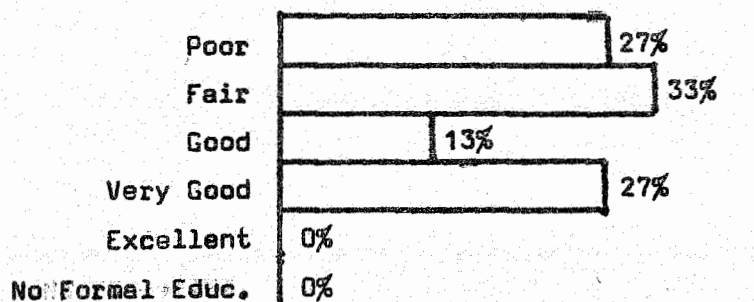
1970 or later



1960-1969

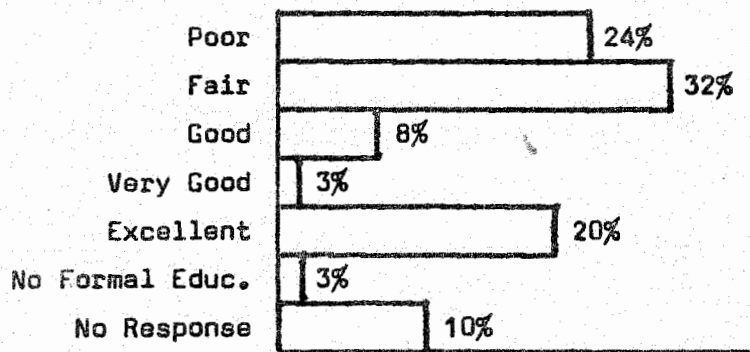


1950-1959

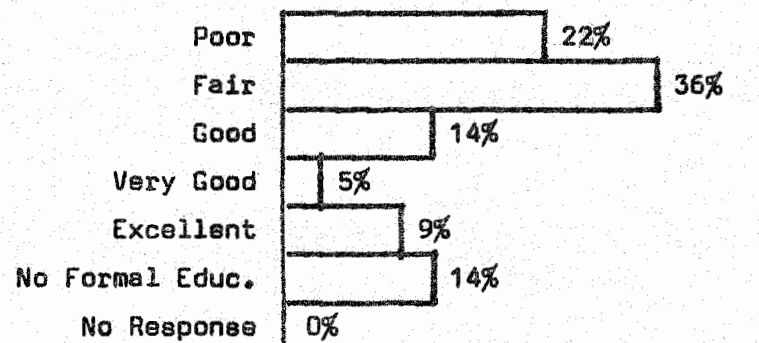


1940-1949

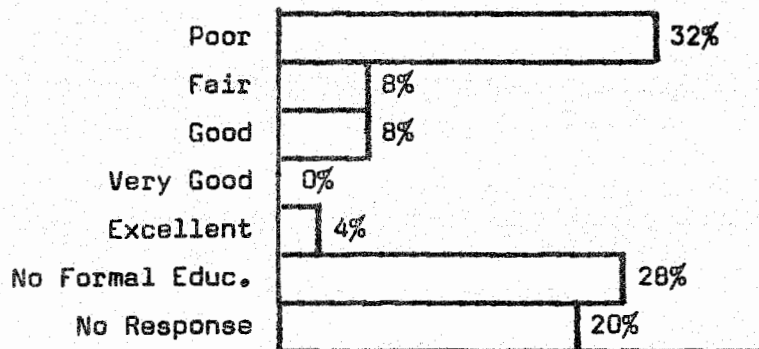
Graphs Correlating Question #2 (Year of Graduation) with Question #8  
(Rate your Formal Education in Developmental Vision)



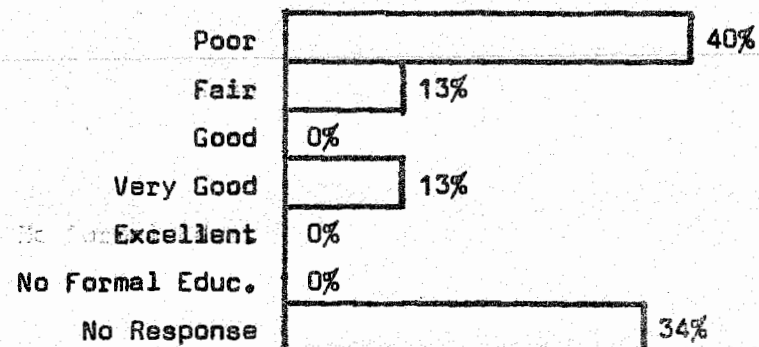
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1960-1969



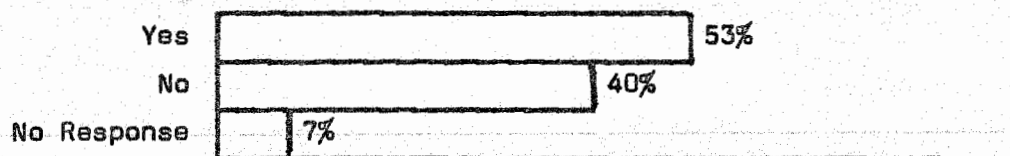
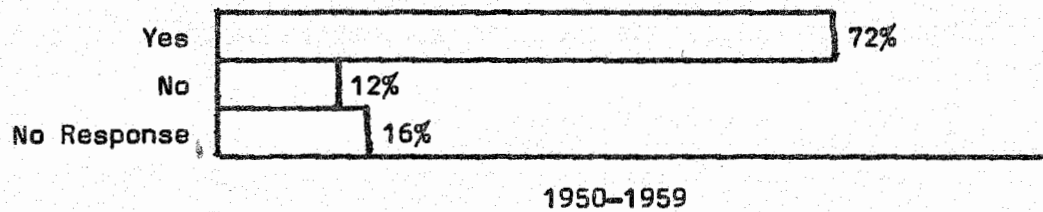
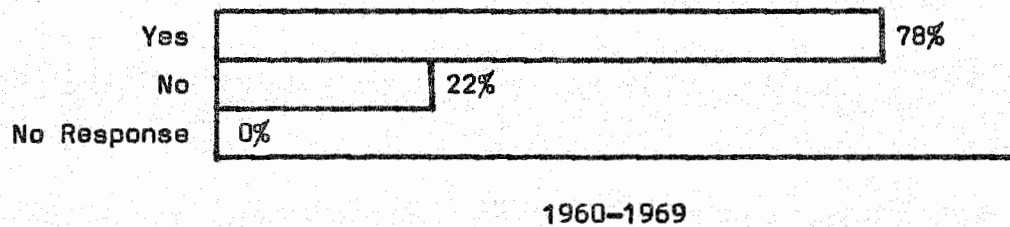
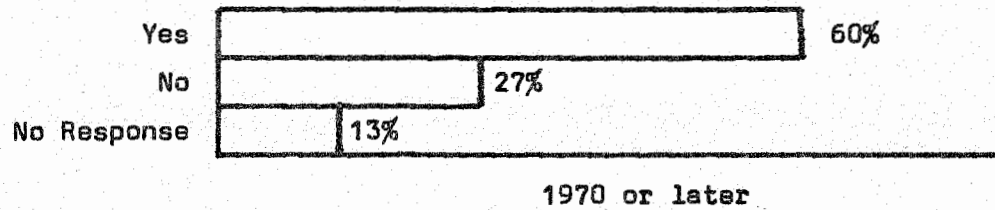
1950-1959



1940-1949

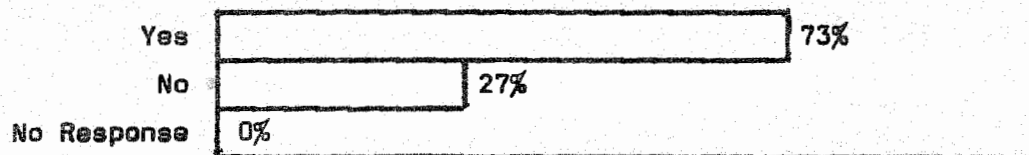
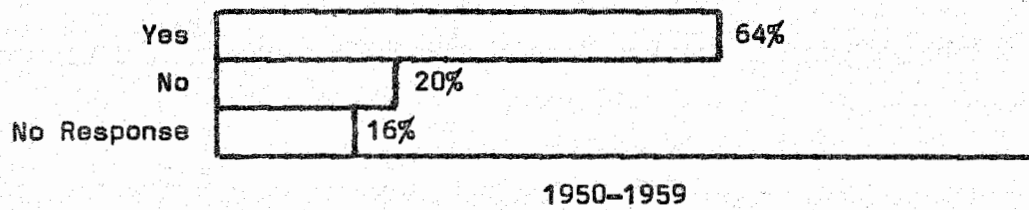
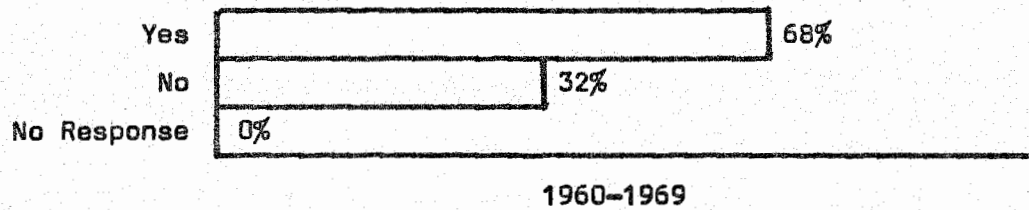
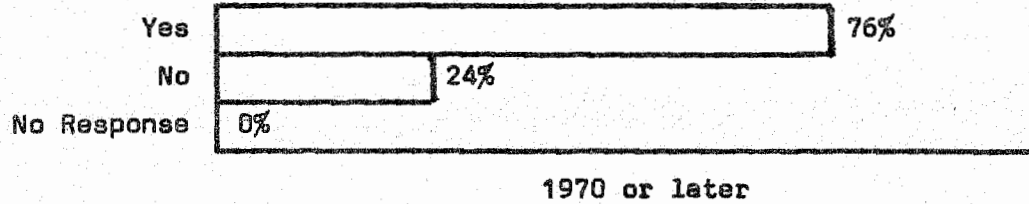


Graphs Correlating Question #2 (Year of Graduation) with Question #15  
(Do You Feel that the Emphasis on Developmental Vision at your School  
is Adequate?)





Graphs Correlating Question #2 (Year of Graduation) with Question #16  
(Do you feel that the Emphasis on Visual Training at your School is  
Changing?)



Graphs Correlating Question #2 (Year of Graduation) with Question #17  
(Do You Feel that the Emphasis on Developmental Vision at your School  
is Changing?)

